

Listing of Claims:

Claim 1 (currently amended) A method for listening to simultaneous audio signals, the method comprising:

receiving a first audio signal from a first source;

adding only a first differentiation cue ~~in the form of an amplitude difference of at least 3 dB~~ to the first audio signal to produce a first stereo signal having a right first audio signal and a left first audio signal;

receiving a second audio signal from a second source;

producing a second stereo signal having a right second audio signal and a left second audio signal from said second audio signal;

providing the right first audio signal and right second audio signal to a right audio transducer; and

providing the left first audio signal and the left second audio signal to a left audio transducer;

wherein said first differentiation cue provides differentiation to allow a listener to more easily distinguish said first and second audio signals than without said differentiation cue; and

wherein at least one of said sources does not receive said stereo signals.

Claim 2 (previously ~~amended~~ presented) The method of claim 1 wherein the first audio signal is a continuous broadcast.

Claim 3 (original) The method of claim 2 wherein the continuous broadcast is a weather report broadcast.

Claims 4-5. (previously canceled)

Claim 6 (currently amended) A method for listening to simultaneous audio signals,

the method comprising:

receiving a first audio signal from a first source;

adding only a first differentiation cue to the first audio signal to produce a first stereo signal having a right first audio signal and a left first audio signal;

receiving a second audio signal from a second source;

producing a second stereo signal having a right second audio signal and a left second audio signal from said second audio signal;

providing the right first audio signal and right second audio signal to a right audio transducer; and

providing the left first audio signal and the left second audio signal to a left audio transducer;

wherein said first differentiation cue provides ~~sufficient~~ differentiation to allow a listener to more easily distinguish said first and second audio signals than without said differentiation cue;

wherein said cue is added independent of any positional information corresponding to said audio signals;

wherein the first differentiation cue comprises channel separation between the right first audio signal and the left first audio signal;

wherein the channel separation is an amplitude difference between the right first audio signal and the left first audio signal; and

wherein the amplitude difference is at least 3 dB; and

wherein one of said sources does not receive said stereo signals.

Claim 7 (currently amended) A communication system comprising:

a first audio input configured to receive a first monaural audio signal from a first source;

a second audio input configured to receive a second monaural audio signal from a second source;

a first differentiation block coupled to the first audio input and providing only a fixed first differentiation cue in the form of an amplitude difference of at least 3 dB to the first audio input to create a having a first right channel and a first left channel;

a second differentiation block coupled to the second audio input and providing a second differentiation cue to the second audio input to create a second right channel and second left channel;

a left channel summer combining the first left channel and the second left channel to produce a left channel output; and

a right channel summer combining the first right channel and the second right channel to produce a right channel output;

wherein said first differentiation cue provides differentiation to allow a listener to more easily distinguish said first and second audio signals than without said differentiation cue; and

wherein one of said sources does not receive said left channel or right channel outputs.

Claim 8 (currently amended) A communication system comprising:

a first audio input configured to receive a first monaural audio signal from a first source;

a second audio input configured to receive a second monaural audio signal from a second source;

a first differentiation block coupled to the first audio input and providing only a fixed first differentiation cue in the form of an amplitude difference of at least 3 dB to the first audio input to create a first right channel and a first left channel;

a second differentiation block coupled to the second audio input and providing only a fixed second differentiation cue in the form of an amplitude difference of at least 3 dB to the second audio input to create a second right channel and second left channel;

a left channel summer combining the first left channel and the second left channel

to produce a left channel output; and

a right channel summer combining the first right channel and the second right channel to produce a right channel output;

wherein said second monaural audio signal is produced by a microphone coupled to the communication system; and

wherein one of said sources does not receive said left channel or right channel outputs.

Claim 9 (currently amended) A communication system comprising:

a first audio input configured to receive a first monaural audio signal from a first source;

a second audio input configured to receive a second monaural audio signal from a second source;

a first differentiation block coupled to the first audio input and providing only a fixed first differentiation cue in the form of an amplitude difference of at least 3 dB to the first audio input to create a first right channel and a first left channel;

a second differentiation block coupled to the second audio input and providing only a fixed second differentiation cue in the form of an amplitude difference of at least 3 dB to the second audio input to create a second right channel and second left channel;

a left channel summer combining the first left channel and the second left channel to produce a left channel output; and

a right channel summer combining the first right channel and the second right channel to produce a right channel output;

wherein the first monaural audio signal is provided from a radio receiver; and
wherein one of said sources does not receive said left channel or right channel outputs.

Claim 10 (currently amended) A communication system comprising:

a first audio input configured to receive a first monaural audio signal from a first source;

a second audio input configured to receive a second monaural audio signal from a second source;

a first differentiation block coupled to the first audio input and providing a fixed first differentiation cue to the first audio input to create a first right channel and a first left channel;

a second differentiation block coupled to the second audio input and providing a second fixed differentiation cue to the second audio input to create a second right channel and a second left channel;

a left channel summer combining the first left channel and the second left channel to produce a left channel output;

a right channel summer combining the first right channel and the second right channel to produce a right channel output;

wherein the first monaural audio signal is provided from a radio receiver, and

a microphone coupled to the communication system and, the microphone producing a third audio signal coupled to a third differentiation block, the third differentiation block providing a third differentiation cue to the third signal to produce a third left channel and a third right channel, the third left channel being coupled to the left channel summer and the third right channel being coupled to the ~~third~~ right channel summer; and

wherein one of said sources does not receive said left channel or right channel outputs.

Claim 11 (previously ~~amended~~ presented) A communication system comprising:
a first audio input configured to receive a first monaural audio signal from a first source;

a second audio input configured to receive a second monaural audio signal from a second source;

a first differentiation block coupled to the first audio input and providing only a fixed first differentiation cue in the form of an amplitude difference of at least 3 dB to the first audio input to create a first right channel and a first left channel;

a second differentiation block coupled to the second audio input and providing a second fixed differentiation cue to the second audio input to create a second right channel and a second left channel;

a left channel summer combining the first left channel and the second left channel to produce a left channel output;

a right channel summer combining the first right channel and the second right channel to produce a right channel output;

wherein the first monaural audio signal is provided from a radio receiver; and

a detector coupled to the radio receiver, the detector coupled to a switch disposed between the second audio input and the left channel summer and the right channel summer, the switch being responsive to a detection signal produced by the detector and opening when a signal is detected; and

wherein one of said sources does not receive said left channel or right channel outputs.

Claim 12 (currently amended) A communication system comprising:

a first audio input configured to receive a first monaural audio signal from a first source;

a second audio input configured to receive a second monaural audio signal from a second source;

a first differentiation block coupled to the first audio input and providing only a fixed first differentiation cue in the form of an amplitude difference of at least 3 dB to the first audio input to create a first right channel and a first left channel;

a second differentiation block coupled to the second audio input and providing only

a fixed second differentiation cue in the form of an amplitude difference of at least 3 dB to the second audio input to create a second right channel and a second left channel;

a left channel summer combining the first left channel and the second left channel to produce a left channel output;

a right channel summer combining the first right channel and the second right channel to produce a right channel output;

wherein a resistive voltage divider provides the first fixed differentiation cue; and
wherein one of said sources does not receive said left channel or right channel
outputs.

Claim 13 (currently amended) A communication system comprising:

a first audio input configured to receive a first monaural audio signal from a first
source;

a second audio input configured to receive a second monaural audio signal from a
second source;

a first differentiation block coupled to the first audio input and providing a fixed first differentiation cue to the first audio input to create a first right channel and a first left channel;

a second differentiation block coupled to the second audio input and providing only a fixed second differentiation cue to the second audio input to create a second right channel and a second left channel;

a left channel summer combining the first left channel and the second left channel to produce a left channel output;

a right channel summer combining the first right channel and the second right channel to produce a right channel output; and

wherein a resistive voltage divider provides the first fixed differentiation cue; and
wherein the resistive voltage divider provides an amplitude difference of at least about 3 dB between the left channel output and the right channel output; and

wherein one of said sources does not receive said left channel or right channel outputs.

Claim 14 (currently amended) A method for listening to simultaneous audio information, the method comprising:

providing a first monaural audio signal from a first source;

adding only a differentiation cue in the form of an amplitude difference of at least 3 dB to the first monaural audio signal to produce a first stereo signal having a left signal and a right signal;

providing a second audio signal from a second source, the second audio signal being at least partially simultaneous with the first monaural audio signal;

coupling the left signal, the right signal, and the second audio signal to a stereo transducer so that a listener perceiving an output of the stereo transducer more easily perceives information contained in the first monaural audio signal than if the differentiation cue were not added to the first monaural audio signal;

wherein said first differentiation cue provides ~~sufficient~~ differentiation to allow a listener to more easily distinguish said first and second audio signals than without said differentiation cue;

wherein said cues are added independent of any positional information corresponding to said audio signals; and

wherein one of said sources does not receive said stereo signals.

~~Cancel~~ Claims 15-17 (Canceled)

Claim 18 (currently amended) An apparatus for listening to a plurality of contemporaneous radio transmissions, the apparatus comprising:

a plurality of front microphone inputs, including a first microphone input and a second microphone input for producing a front microphone signal;

a first differentiation block for adding a first differentiation cue to said front microphone signal to provide a first stereo signal having a front right channel signal and a front left channel signal;

a right summer for receiving said front right channel signal;

a left summer for receiving said front left channel signal;

at least one of a plurality of navigation and/or annunciator inputs for providing an annunciator signal;

a third differentiation block for adding a third differentiation cue to said annunciator signal to provide a differentiated signal to said right summer and said left summer;

a fourth differentiation block for adding a fourth differentiation cue to a first communication input signal (Com 1) to provide a differentiated signal to said right summer and said left summer;

a fifth differentiation block for adding a fifth differentiation cue to a second communication input signal (Com2) to provide a differentiated signal to said right summer and said left summer;

a left output channel for providing a summed output signal from said left summer;
and

a right output channel for providing a summed output signal from said right summer,

wherein, said differentiation cues differ from one another to create an impression that sounds associated with each of said differentiation cues originates from a unique psycho-acoustic location.

Claim 19 (original) The apparatus of claim 18 further comprising:

a summer for summing said first and said second microphone inputs to produce said front microphone signal.

Claim 20 (original) The apparatus of claim 18 further comprising:
a plurality of back microphone inputs, including a third microphone input and a fourth microphone input, for producing a back microphone signal;
a differentiation block for adding a second differentiation cue to said back microphone signal to provide a back right channel signal to said right summer and a back left channel signal to said left summer.

Claim 21 (original) The apparatus of claim 20 further comprising:
a summer for summing said third and said fourth microphone inputs to produce said back microphone signal.

Claim 22 (original) The apparatus of claim 18 further comprising:
an input for an automatically mutable stereo entertainment system for providing a first input to said left summer and a second input to said right summer.

Claim 23 (currently amended) An apparatus configured to modify radio signals between an avionics panel in an airplane and a stereo headset, comprising:
a first audio input configured to receive a first monaural audio signal from a first source;
a second audio input configured to receive a second monaural audio signal from a second source;
a first differentiation block coupled to the first audio input and providing a fixed first differentiation cue in the form of an amplitude difference of at least 3 dB to the first audio input to create a first right channel and a first left channel;
a second differentiation block coupled to the second audio input and providing a second fixed differentiation cue in the form of an amplitude difference of at least 3 dB to the second audio input to create a second right channel and a second left channel;
a left channel summer combining the first left channel and the second left channel to

produce a left channel output; and

a right channel summer combining the first right channel and the second right channel to produce a right channel output;

wherein said first differentiation cue provides differentiation to allow a listener to more easily distinguish said first and second audio signals than without said differentiation cue; and

wherein one of said sources does not receive said left channel or right channel outputs.

Claim 24 (currently amended) A method for listening to simultaneous audio signals, the method comprising:

receiving a first audio signal from a first source;

adding only a first differentiation cue in the form of a differential time delay to the first audio signal to produce a first stereo signal having a right first audio signal and a left first audio signal;

receiving a second audio signal from a second source;

producing a second stereo signal having a right second audio signal and a left second audio signal from said second audio signal;

providing the right first audio signal and right second audio signal to a right audio transducer; and

providing the left first audio signal and the left second audio signal to a left audio transducer;

wherein said first differentiation cue provides differentiation to allow a listener to more easily distinguish said first and second audio signals than without said differentiation cue; and

wherein one of said sources does not receive said stereo signals.

Claim 25 (currently amended) A method for listening to simultaneous audio signals,

the method comprising:

receiving a first audio signal from a first source;

adding only a first differentiation cue in the form of a differential frequency gain to the first audio signal to produce a first stereo signal having a right first audio signal and a left first audio signal;

receiving a second audio signal from a second source;

producing a second stereo signal having a right second audio signal and a left second audio signal from said second audio signal;

providing the right first audio signal and right second audio signal to a right audio transducer; and

providing the left first audio signal and the left second audio signal to a left audio transducer;

wherein said first differentiation cue provides differentiation to allow a listener to more easily distinguish said first and second audio signals than without said differentiation cue; and

wherein one of said sources does not receive said stereo signals.

Claim 26 (currently amended) A method for listening to simultaneous audio signals, the method comprising:

receiving a first audio signal in the form of a radio broadcast from a first source;

adding only a first differentiation cue in the form of a differential time delay to the first audio signal to produce a first stereo signal having a right first audio signal and a left first audio signal;

receiving a second audio signal in the form of a second radio broadcast or intercom from a second source;

producing a second stereo signal having a right second audio signal and a left second audio signal from said second audio signal;

providing the right first audio signal and right second audio signal to a right audio

transducer; and

providing the left first audio signal and the left second audio signal to a left audio transducer;

wherein said first differentiation cue provides differentiation to allow a listener to more easily distinguish said first and second audio signals than without said differentiation cue; and

wherein one of said sources does not receive said stereo signals.